

**A taxonomic study on the genus *Tolidopalpus*,
with description of a new species
(Coleoptera: Mordellidae)**

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マルヒメハナノミ属の分類学的研究
(鞘翅目: ハナノミ科)

初宿成彦*

抄録: マルヒメハナノミ (*Tolidopalpus*) 属の 1 新種を記載し、既知の 2 種を含めて形態学的、分類学的検討を行った。カリマンタン西部からの新種は属の模式種に形態的に類似している。しかし、本稿で再記載したガロアヒメハナノミ *T. galloisi* (Kôno) はやや異質である。

Abstract : A new species of the genus *Tolidopalpus* is described and three species including known ones are examined morphologically. The new species from western Kalimantan is allied to the type species of the genus, while *T. galloisi* (Kôno), redescribed in this paper, is somewhat heterogeneous.

Key Words : Mordellidae; *Tolidopalpus*; new species; *kalimantanensis*; taxonomy.

Tolidopalpus Ermisch, 1952, one of the mordellid genera, is characterized by enlarged maxillary palpus in male. The genus has, hitherto, been represented by 2 Far Eastern species: *T. castaneicolor* Ermisch, 1952 and *T. galloisi* (Kôno, 1932). The former was described as the type species on the basis of specimens from Fujian Province, China, and the latter was described from Japan, but was referred to *Mordellistena* formerly.

In this paper, I should like to describe an additional new species of the genus from western Kalimantan, and morphological studies are made for these 3 species. Description, figures of reliable diagnoses including genital organs and typical coloration patterns of all the species treated in the genus *Tolidopalpus* are given. Additionally, the taxonomy of the genus and its allied genera is discussed.

Observation methods and depository of specimens

Antenna, maxillary palpus, fore and hind legs, male genitalia and 8th abdominal urosternum were temporarily slide-mounted and examined by a light microscope (LM). The frontal surface of terminal maxillary palpal segment was observed by a scanning electron microscope (SEM) for a male of *Tolidopalpus galloisi*, with material alcohol-dehydrated and gold coated. Most of external

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structures and coloration were, otherwise, observed by a stereoscopic microscope (SM) in dried form.

All the specimens treated in this paper are deposited in the Osaka Museum of Natural History, Osaka, Japan. The registration number of each specimen is shown in a bracket following the original datum in order to give facility of reexamination.

Genus *Tolidopalpus* Ermisch

Tolidopalpus Ermisch, 1952: 144.

Type species. *T. castaneicolor* Ermisch, 1952: 149 [Fujian Prov., China]

Description: Body coloration reddish to dark brown, with mouth parts, basal segments of antenna and hind tibial spurs always yellowish to reddish brown. Eye circular to oval without emargination, finely faceted. Antenna remarkably short and beads-like, nearly 1/3 as long as elytron, 4th segment either smaller or larger, each 4th or 5th to 10th almost as long as wide. Terminal segment of maxillary palpus in male enlarged and more or less wide bean-form, articulation on outer side and frontal surface hollowed and microstructured (*Mordellochroa*-type), and in female rather thick securiform (*Mordellistena*-type). Pronotum a little wider than long, lateral margin nearly straight, anteror and posterior angles obtuse and broadly rounded, apical margin normally protrudent. Pygidium remarkably short and stout, usually less than 1/3 of elytron in length, but rarely as long as 1/3. Fourth segment of fore tarsus dilated and much emarginate at dorso-apical margin, articulation of terminal segment shifted to center of dorsal surface. Outer spur of hind tibia nearly 1/3 as long as inner one. Hind tibia provided with 4 oblique ridges in general, basal one somewhat rudimental, basal 2nd one the longest and very oblique, apical one also oblique and not parallel to tibial edge. Hind tarsal ridges very oblique and almost longitudinal at dorsal edges of segments, 1st, 2nd and 3rd segments with 3-4, 2 and 2 ridges respectively. Eighth abdominal urosternum nearly as long as wide, with more or less protrudent and hairy median lobe. Paramera of male genitalia rather normal form of *Mordellistenini*, the left one furnished with long and slender ventral branch and the right one with thick ventral branch.

Body length: 3.8 - 5.7 mm.

Distribution: Eastern Siberia, Japan, Taiwan, Southern China, Indochina, Sunda Isls., New Guinea.

Affinities: The genus much resembles *Falsomordellistena*. The most helpful diagnosis is the enlarged terminal segment of maxillary palpus in male, but females are hard to distinguish by appearance. According to our knowledge so far, females possessing all the following characters can be determined as *Tolidopalpus*: antenna is remarkably short and beads-like; hind tibia possesses 3 long and oblique ridges and a rudimental one; ridges are present also on 3rd segment of hind tarsus; pygidium is somewhat short.

According to the generic description, the characters of eyes of either finely or coarsely faceted are the most diagnostic in distinguishing from *Pseudotolida* Ermisch, but its difference seems to be indistinct. I think that helpful characters for *Pseudotolida* are longer and more slender pygidium, antenna of rather normal length and form as in *Mordellistena*, and are not so oblique ridges on hind

tibia.

The Mediterranean genera *Dellamora* Normand and *Pseudodellamora* Ermisch are different from this genus in the pronotum which is much wider than long and the body size which is much smaller (less than 2.5 mm in length).

***Tolidopalpus castaneicolor* Ermisch, 1952**

(Fig. 1)

Tolidopalpus castaneicolor Ermisch, 1952: 149; Batten, 1990: 138.

Additional description: Eighth abdominal urosternum in male (Fig. 1-H) a little wider than long, median lobe narrow and wedge-like, covered with dense and somewhat long hairs.

Left parameron of male genitalia (Fig. 1-F) thin at middle, furnished with feebly curved ventral branch and elongate basal process; right parameron provided with thick ventral branch; median lobe rather normally long and slender.

Body length: 4.0 - 4.2 mm.

Material examined: 2♂♂, Mt. Bawang, alt. 250 - 300 m, W. Kalimantan, Indonesia, October, 1990 [OMA·901032·001-2].

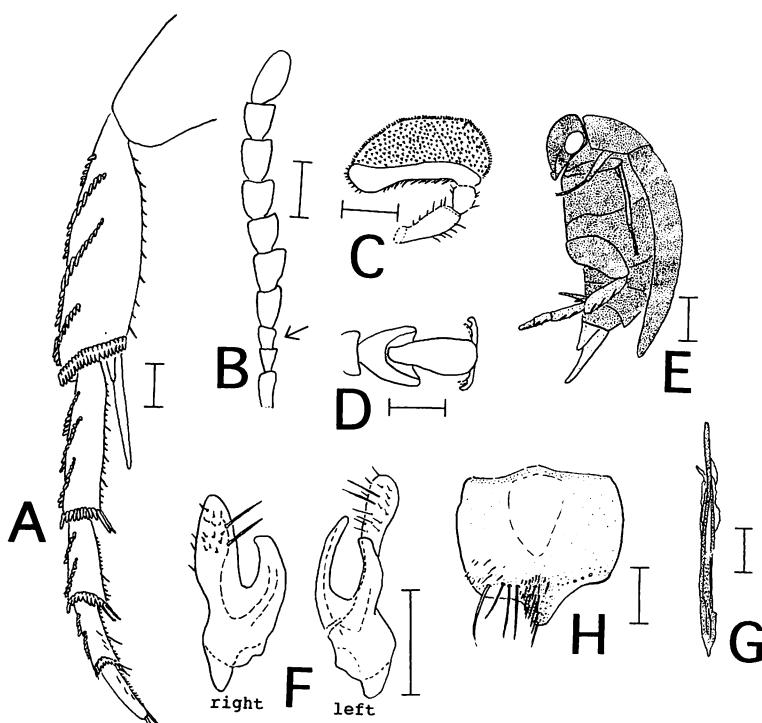


Fig. 1. *Tolidopalpus castaneicolor* Ermisch (♂). A, Hind leg; B, antenna (4th segment arrowed); C, maxillary palpus; D, distal segments of fore tarsus; E, coloration pattern; F, paramera of genitalia; G, median lobe of genitalia; H, eighth abdominal urosternum. Scales: 0.25mm except E of 0.5mm.

Distribution: China (Fujian Prov.); Kalimantan; New Guinea.

Affinities: This species resembles *T. galloisi* (Kôno) in general appearance, but can be distinguished from it in the pale pygidium, the smaller fourth antennal segment and the shape of male genitalia.

Remarks: The figures of right parameron and maxillary palpus shown in this paper much agree with those of Batten's paper (1990).

Tolidopalpus kalimantanensis sp. nov.

(Fig. 2)

Male: Coloration (Fig. 2-E) basically reddish brown, but metasternum, metepisternum, outer half of metacoxa and elytron blackish. Hairs on head and pronotum black, but otherwise lustrous in gold.

Eye circular without emargination and finely faceted. Antenna (Fig. 2-B) short and beads-like, slightly serrate, 4th segment a little conically cylindrical and clearly smaller than 5th, and each of 5th to 10th almost as long as wide. Terminal segment of maxillary palpus (Fig. 2-C) enlarged and

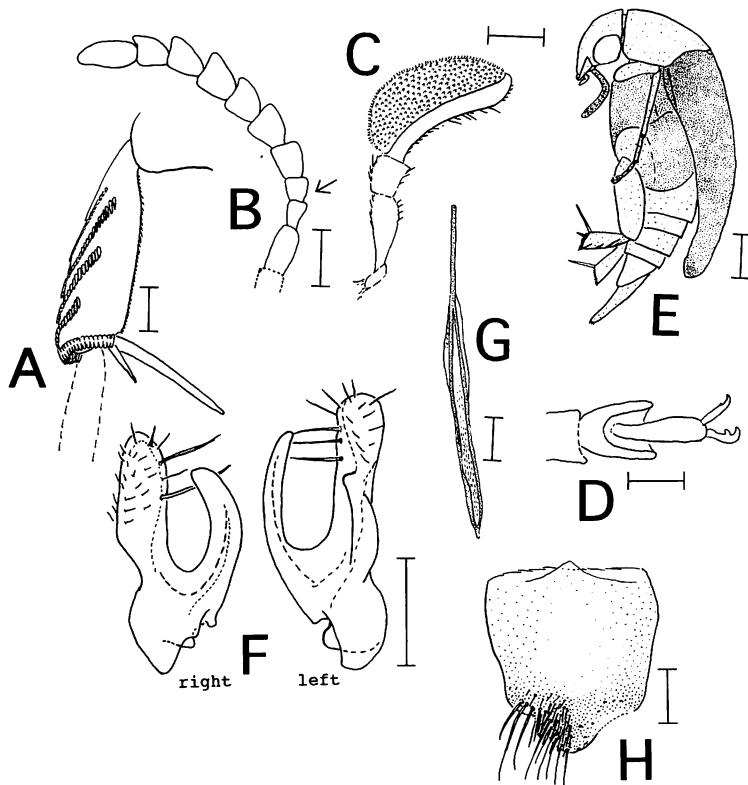


Fig. 2. *Tolidopalpus kalimantanensis* sp. nov. (Holotype, ♂). A, Hind leg; B, antenna (4th segment arrowed); C, maxillary palpus; D, distal segments of fore tarsus; E, coloration pattern; F, paramera of genitalia; G, median lobe of genitalia; H, eighth abdominal urosternum. Scales: 0.25mm except E of 0.5mm.

broadly bean-formed, the outer side articulated and frontal surface hollowed (*Mordellochroa*-type). Pronotum a little wider than long, lateral margin substraight, anterior and posterior angles broadly rounded and apical margin normally protrudent. Apical margin of anal segment not emarginate. Pygidium remarkably long in *Tolidopalpus*, nearly 1/3 as long as elytron.

Penultimate segment of fore tarsus (Fig. 2-D) dilated and emarginate at dorso-apical margin, terminal segment of articulation shifted to center of dorsal surface. Penultimate segment of middle tarsus almost the same feature as one of fore tarsus. Outer spur of hind tibia nearly 1/3 as long as inner one.

Hind tibia (Fig. 2-A) provided with 4 ridges, basal one rudimental and comprised by 5 or more spines, basal 2nd one the longest, apical one oblique and not parallel to tibial edge.

Eighth abdominal urosternum (Fig. 2-H) almost as long as wide, wide median lobe covered with long and dense hairs.

Left parameron of male genitalia (Fig. 2-F) long and a little thick, furnished with long ventral branch and tiny basal process; right parameron slightly compressed at basal 1/3; median lobe rather normally long and slender.

Body length: 3.8 mm.

Holotype: ♂, Mt. Bawang, alt. 250 - 300 m, W. Kalimantan, Indonesia, October, 1990 [OMTI-56].

Affinities: This new species is somewhat allied to *T. castaneicolor* in forms of antenna, maxillary palpus and hind leg. But the body coloration of reddish brown and the longer pygidium are helpful for distinction from the latter.

***Tolidopalpus galloisi* (Kôno, 1932)**

(Fig. 3)

Mordellistena galloisi Kôno, 1932: 158.

Falsomordellistena galloisi : Nomura, 1951: 64.

Tolidopalpus galloisi : Nomura et Katô, 1959: 5.

Description: Coloration (Fig. 3-E) mostly dark brown, head always black, mouth parts, 3 basal segments of antenna, humeralis of elytron, hind tibial spurs and legs often yellowish to reddish brown. Hairs lustrous in gold.

Eye circular without emargination and finely faceted. Antenna (Fig. 3-B) short and beads-like, slightly serrate, 4th segment clearly larger than 3rd one, each 5th to 10th almost as long as wide. Terminal segment of maxillary palpus (Fig. 2-C, I) enlarged and narrowly bean-formed, articulation on basal side, frontal surface in male hollowed microstructure (*Mordellochroa*-type : Fig. 4), and rather thick securiform in female, with inner margin which is a little longer than apical margin (*Mordellistena*-type). Pronotum slightly wider than long, with substraight lateral margin, anterior and posterior angles broadly rounded, apical margin normally protrudent. Apical margin of anal segment not emarginate in both sexes. Pygidium very short, 1/4 as long as elytron.

Penultimate segment of fore tarsus (Fig. 3-D) almost as long as wide, emarginate at dorso-apical margin, articulation of terminal segment shifted to center of dorsal surface. Penultimate

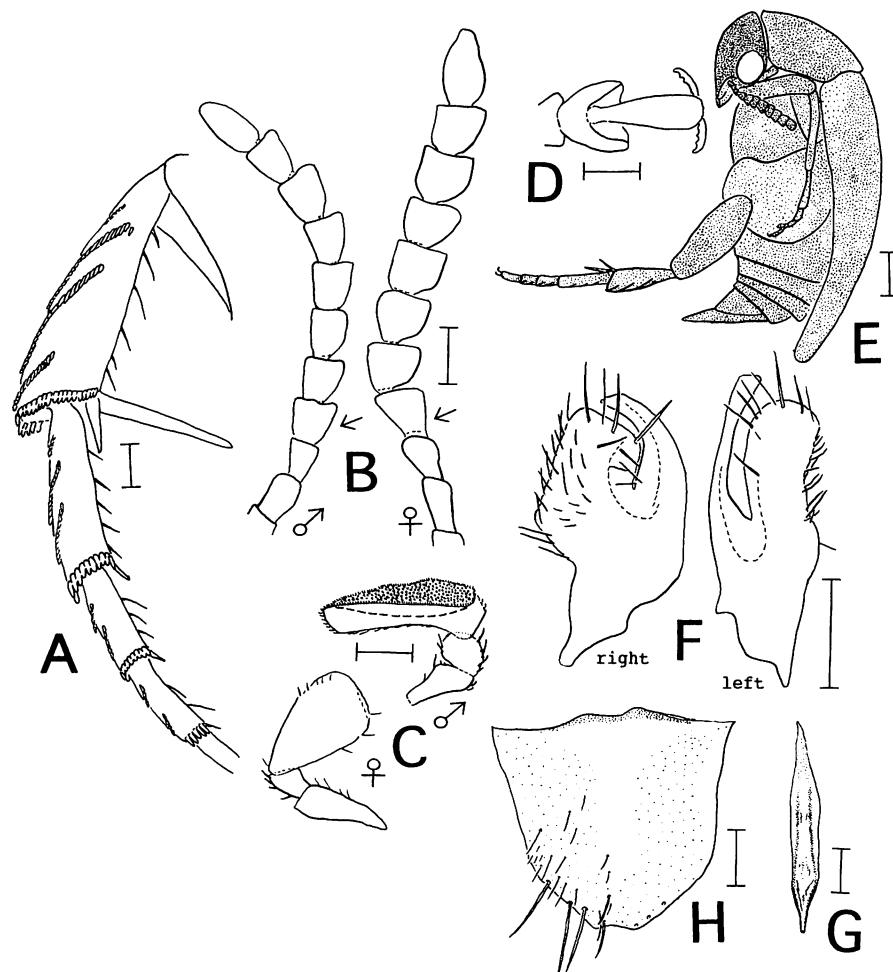


Fig. 3. *Tolidopalpus galloisi* (Kôno). A, Hind leg; B, antennae (4th segment arrowed); C, maxillary palpi; D, distal segments of fore tarsus; E, coloration pattern; F, paramera of male genitalia; G, median lobe of male genitalia; H, eighth abdominal urosternum. Scales: 0.25mm except E of 0.5mm.

segment of middle tarsus almost the same feature as that of fore tarsus. Outer spur of hind tibia nearly 1/3 as long as inner one.

Hind leg (Fig. 3-A) possesses long setae on ventral edge, tibia provided with 4 ridges, basal one of which is somewhat rudimental, basal 2nd one the longest and surpassing the medial axis of the segment, 1st, 2nd and 3rd tarsal segment furnished with 3, 2 and 2 very oblique ridges respectively.

Eighth abdominal urosternum in male (Fig. 3-H) almost as long as wide, median lobe not protrudent, situated at apex and less hairy.

Left parameron of male genitalia (Fig. 3-F) thick, furnished with long and slender ventral branch, basal process absent; right parameron also thick and provided with stout ventral branch; median lobe remarkably broad and short.

Body length: ♂ 3.8 - 5.1 mm, ♀ 4.1 - 5.7 mm.

Larval description: Refer to Mamayev and Odnosum (1984).

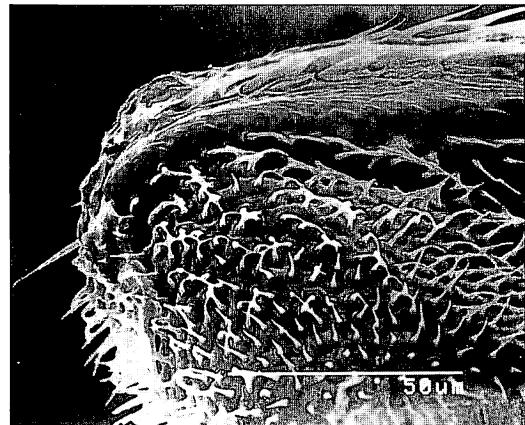


Fig. 4. Apical area of frontal surface of maxillary palpus in male of *Tolidopalpus galloisi* (photograph by SEM).

Host plant: Withered needle-leaf trees (Mamayev and Odnosum, 1984).

Biology: Adults do not visit flowers. Only one individual was collected by light trap.

Material examined: [Hokkaido] 1♀, Nopporo, Ebetsu, 17.vii.1990, M. Ôhara leg. [OMD·900717·001]; 1♀, the same locality, 17.viii.1992, light trap, Y. Sakamaki leg. [OMD·920817·102]; 1♂, Toyotaki, Sapporo, 23.vii.1990, S. Shiyake leg. [OMD·900723·001]; 1♂, Hoheikyo, Sapporo, 18.viii.1966, H. Takizawa leg. [OMD·660818·001]. [Honshu] 1♀, Shiobara, Tochigi Pref., 28.vii.1974, H. Takizawa leg. [OMD·740728·001]; 1♂, Mt. Takaosan, Tokyo, 3.vii.1969, H. Takizawa leg. [OMD·690703·010]; 1♀, Daibosatsu-tôge, Yamanashi Pref., 12-13.viii.1970, H. Takizawa leg. [OMD·700813·001]; 1♀, Shimosuwa, Nagano Pref., 8.viii.1989, H. Takizawa leg. [OMD·890808·001]; 1♀, Mizugamine, Mt. Gomadan, Wakayama Pref., 31.vii.1957, I. Hiura leg. [OMD·570731·001]. [Shikoku] 1♀, Mt. Tebako, Kochi Pref., 9.viii.1962, K. Ueda leg. [OMD·620809·001]. [Kyushu] 1♂, Mt. Hikosan, Fukuoka Pref., 6.viii.1992, E. Ikeda leg. [OMD·920806·001]; 1♀, Kamisaka Pass, Tsushima I., 28.vii.1966, H. Konishi leg. [OMD·660728·001]. [Nansei Is.] 1♂, Amami-Ôshima I., 8.v.1966, K. Kusigemati leg. [OMD·660508·001]; 1♂, Nishinakama, Amami-Ôshima I., 29.iv.1977, H. Takizawa leg. [OMD·770429·039]; 1♀, Yona, Okinawa I., 1-3.v.1976, H. Takizawa leg. [OMD·760503·001].

Distribution: Eastern Siberia (Primorskij); Japan (Hokkaido, Honshu, Shikoku, Kyushu, Tsushima I., Shimo-Koshikijima I., Amami-Ôshima I., Okinawa I.); Taiwan; Indochina (Northern Thailand).

Affinities: This species can be easily distinguished from the other *Tolidopalpus* species by entirely dark coloration, 4th segment of antenna which is much larger than 3rd one, and presence of long setae on ventral edge of hind leg.

Remarks: This species is somewhat peculiar in the genus *Tolidopalpus*. Especially, the short median lobe of male genitalia is extraordinary even among the species of the tribe Mordellistenini.

Considerations

Although polarity of the character states in Mordellidae has not been analyzed in detail, the genus *Tolidopalpus* seems to be rather primitive in morphological view points indicated as the following characteristics: the ridges on hind tibia are very oblique; the ridges are present also on

the 3rd segment of hind tarsus; the 8th abdominal urosternum is rather simply formed; penultimate segments of fore and middle tarsi are dilated. It is certain that this genus is posited near *Falsomordellistena* on the phylogenetic system of Mordellidae.

On the other hand, the stout pygidium and the short antenna, which are definitia of the genus from the other allied genera, seem to be derived characters.

Sexual dimorphism can be observed in maxillary palpus: The terminal segment is enlarged and hollowed in frontal surface in male and is securiform in female as widely observed in Mordellidae. The analogous phenomenon can also be observed in other mordellid genera, *Mordellochroa*, *Tolidostena*, *Mordellistenoda* or *Pseudotolida*, and some of them are clearly distantly related. This character may, in reality, parallelly emerged in the course of evolution and not so important in analyzing the phylogeny of Mordellidae.

Although the ecological function is not known, it is most probable that it works as a sensory organ to recognize females.

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Literature Cited

Batten, R. 1990. Mordellidae from Papua New Guinea, with description of new species. Zool. Meded. (63): 137-161.
Ermisch, K. 1952. Neue Mordelliden aus der chinesischen Provinz Fukien. Entomol. Bl. (47/48): 143-157.
Kôno, H. 1932. Die Mordelliden Japans (III. Nachtrag). Trans. Sapporo Nat. Hist. Soc. **12**(2): 152-160.
Hatayama, T. 1985. "Mordellidae: Mordellistenini" Kurosawa, Y. et al. ed., The Coleoptera of Japan in color III. Hoikusha, Osaka, p.387-397, pl. 67. (in Japanese)
Mamayev, B. M., and Odnosum, V. K. 1984. New data on morphology and systematics of the Mordellidae larvae (Coleoptera) of the Far Eastern USSR fauna. Vest. Zool. **1984**(4): 61-66. (in Russian)
Nomura, S. 1951. Zur Kenntnis der Mordellistenini aus Japan, Korea und Formosa. Tôhô-Gakuhô (1): 41-70.
Nomura, S. and Katô, A. 1959. Description of some new Mordellid- and Melandryd species and notes on others. Entomol. Rev. Jpn. **10**(1): 5-9.